

## UNPUBLISHED REPORT 1968/06

# Examination of a block of land at Brooklyn, Burnie

by W. L. Matthews

Messrs McGrath, McGrath and Lillas requested that a block of land that a client was contemplating buying be examined with the purpose of determining the stability or otherwise of the land. A survey in 1963 (Matthews, 1964) indicated that part of this block is in an area which is considered to be unstable or likely to become unstable with increased development. The block is Lot 136 on the eastern side of the planned extension of Flinders Street. Access to it is gained by a continuation of Franklin Street which has been formed by local residents and runs along the eastern margin of the block.

### TOPOGRAPHY

Franklin Street and its continuation are along a sharp steep-sided approximately N-S trending ridge. Alexander Creek runs to the west of the ridge, which is about 100 feet high, and the slope from the top is fairly even at about 20° to 25° (estimated). Romaine Creek runs east of the ridge and the slope down to it has about the same gradient for about 50 feet, then there is a bench about 10 chains wide and then an equally steep slope to the creek. About 15 chains north of the block the ridge dies out and the creeks join.

### GEOLOGY

Tertiary basalt with varying depths of weathering, which may be great, occurs in this area. Interbedded with the basalt in the Burnie district are bands of sand and grit. One of these can be seen north of the block examined, where Flinders Street (proposed) meets Swanston Street and along the side of the bank between Swanston Street and Romaine Creek. It probably continues around the end of the ridge and along the bank between Franklin Street and Alexander Creek but it has been obscured by basalt soil and talus creeping down from higher levels.

### DISCUSSION OF STABILITY

West of Alexander Creek is a zone of old slips which moved towards the creek. Northeast of the block some slipping has taken place on both sides of Romaine Creek. On the east side of Alexander Creek (i.e. where block 136 is situated) there are two areas just above creek level which are concave shaped. One is just below block 136 and the other is further north near where the extension of Federal Street meets Flinders Street. They were not marked on the plan of the original survey but both probably represent shallow slumps into the creek, the latter being the more prominent of the two. They probably resulted from undercutting by the creek and the consequent removal of some of the support to the material above it.

Much of the block is down the slope towards Alexander Creek but the part where the house would be built is at the top where the surface is relatively flat. It is likely that the depth of weathering and accumulated debris from above is fairly large along the sides of the slope, but the fact that the ridge is sharp suggests that the basalt may be weathered only to a shallow depth on top of the hill. Because of the deeply incised creeks, drainage after rain should be rapid with much less seepage underground than in a flat area. There should be little underground drainage coming from other areas (except perhaps from the south) because of the isolation by the two creeks.

If Flinders Street is ever extended along the bottom of the slope, a fairly large amount of excavation would be required which should take away some of the support for the higher land and leave it more prone to slumping. Further possible slumping into the creek after heavy rains would produce the same effect.

### CONCLUSIONS

It seems likely, from the examination of this block, that the area where the house would be built is relatively stable, provided it can be proved that extensive solid basalt occurs at shallow depth under the house site. This stability could be affected by events downhill, such as excavations for a road or slumping into the creek.

### REFERENCE

MATTHEWS, W. L. 1964. The geology of the Burnie area. *Tech. Rep. Dep. Mines Tasm.* 8:103–107.

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